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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/040,275	11/01/2001	David L. Davidson	12598.0126.NPUS00	9601

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EXAMINER	
ORTIZ RODRIGUEZ, CARLOS R	
ART UNIT	PAPER NUMBER
2125	

DATE MAILED: 02/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/040,275	DAVIDSON, DAVID L.	
	Examiner	Art Unit	
	Carlos Ortiz-Rodriguez	2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☒ Claim(s) *15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/16/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 15 objected to because of the following informalities: The symbol in the parenthesis describing the variable tD seems to be a typographical error. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2-4, 6-11, and 15-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakano U.S Patent No. 5,835,379.

Regarding claims 1 and 16, Nakano discloses a method for analyzing or designing a fluid extrusion device using a computer system comprising, inputting fluid rheological data and extrusion device data into said computer system (C13 L48-56), said computer system comprising CFD numerical algorithms and a user interface (C1 L42-50); computing flow characteristics of said extrusion device; and extracting data relating to said flow characteristics (C13 L47-55).

Regarding claims 2, 3 and 4, Nakano discloses a method wherein said fluid comprises a polymer (C14 L24-34).

Regarding claim 6, Nakano discloses a method wherein said rheological data comprises a relationship between shear and/or extensional viscosity with shear and/or extension rate and temperature (C1 L42-50 and C2 L16-32).

Regarding claim 7, Nakano discloses a method wherein said extrusion device data comprises a filtration zone, at least one distribution plate and a die (C13 L47-67).

Regarding claim 8, Nakano discloses a method wherein the filtration zone comprises a sand cavity (C3 L1-11 and C13 L48-67).

Regarding claim 9, Nakano discloses a method wherein said numerical algorithms comprise algorithms selected from the group consisting of coordinate transformation algorithms, root solving algorithms, sorting algorithms, mesh generation algorithms, statistical algorithms, curve fitting algorithms, functional minimization algorithms, interpolation and extrapolation algorithms, and linear and nonlinear equation solving algorithms (C5 L35-45 and C9 L1-32).

Regarding claim 10, Nakano discloses a method wherein said computer system further comprises non-numerical algorithms (C9 L18-32).

Regarding claim 11, Nakano discloses a method wherein said user interface comprises functions selected from the group consisting of functions that prompt the user for appropriate

input, issue warnings, display results, and translate user input and algorithm output into readily usable formats (C7 L60-67 and C8 L1-20).

Regarding claim 14, Nakano discloses a method wherein said extrusion device comprises channels within which fluid flow is characterized by a velocity profile that is fully developed instantaneously (C13 L45-56).

Regarding claim 15 the method wherein said fluid flow is characterized by the following expression:

$tD/tC=(Re\ R)/(2L)<<1$ wherein:

tD=characteristic time scale for diffusive momentum transport in channel (to flow);

tC=residence time in channel;

Re=the Reynolds number;

R=channel radius;

L=length of channel is a result of a designers choice for expressing fluid flow according to a situation encountered.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 5 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano U.S Patent No. 5,835,379 in view of Miani U.S. Patent No. 5,446,142.

Regarding claim 5 Nakano discloses all the limitations of base claim 1.

But Nakano fails to clearly specify a method wherein said extrusion device comprises a fiber spinneret pack.

However Miani disclose a method according wherein said extrusion device comprises a fiber spinneret pack (C4 L12-34).

Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the above invention suggested by Nakano and combining it with the invention disclosed by Miani. The results of this combination would lead to a computer system for the analysis and design of extrusion devices

One of ordinary skill in the art would have been motivated to do this modification because spinneret pack are frequently utilized in this art as discloses by Miani.

Regarding claim 12, Nakano in combination with Miani further disclose a method wherein said flow characteristics are selected from the group consisting of flow rates and fluid velocities at various positions within the pack, pressures at various positions within the pack, temperatures at various positions within the pack, the locations of polymer interfaces throughout the pack and shear and elongation rates at various positions within the pack (see Miani C4 L13-34 and C3 L20-31).

Regarding claim 13, Nakano in combination with Miani further disclose a method wherein said extracted data is selected from the group consisting of flowrates through various channels within the pack, pressure drop across various channels within the pack, exit temperatures of various channels within the pack, polymer interface locations at various channel exits within the pack, shear rates and shear stresses at channel walls within the pack and measures of hydrodynamic instability at various positions within the pack (see Miani C3 L57-67 and C4 L1-8).

Citation of Pertinent Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with respect to computer system for the analysis and design of extrusion devices:

a. U.S. Pat. No. 5,572,434 to Wang et al., which discloses method for simulating mold filling of semi-solid material.

b. U.S. Pat. No. 6,161,057 to Nakano, which discloses apparatus for analyzing a process of fluid flow, and a production method of an injection molded product.

c. U.S. Pat. No. 6,816,820 to Tan et al., which discloses advanced process control for semiconductor manufacturing.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Ortiz-Rodriguez whose telephone number is (571) 272-3747. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P. Picard can be reached on (571) 272-3749. The central official fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P Picard can be reached on (703)308-0538. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Carlos Ortiz-Rodriguez

Patent Examiner

Art Unit 2125

cror

February 17, 2005

LEO PICARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100